

WHAT IS CLAIMED IS:

1. A magnetic disk apparatus comprising:
  - a rotating unit that rotates a recording medium;
  - a storage unit that stores a first time interval that is a time interval between reference signals measured when there is no shift in a center of rotation of the recording medium;
  - a reference signal time interval measuring unit that measures, while the rotating unit rotates the recording medium, a second time interval that is a time interval between reference signals recorded on the recording medium when there is a shift in the center of rotation of the recording medium;
  - a correction value computing unit that computes, based on the first time interval and the second time interval, a correction value of a data write time interval for writing data to the recording medium; and
  - a data writing unit that writes data to the recording medium based on the correction value.
2. The magnetic disk apparatus according to claim 1, wherein the correction value computing unit comprises:
  - a time interval ratio computing unit that computes a ratio between the first time interval and the second time interval; and
  - a sector pulse interval computing unit that computes, based on the ratio, the correction value.

3. The magnetic disk apparatus according to claim 1, wherein the reference signals are servo signals.
4. The magnetic disk apparatus according to claim 1, further comprising a shift detecting unit that detects occurrence of the shift.
5. The magnetic disk apparatus according to claim 4, wherein the shift detecting unit includes an impact sensor.

10 6. The magnetic disk apparatus according to claim 4, wherein the shift detecting unit includes a voice coil motor, wherein a counter-electromotive force of the voice coil motor changes in accordance with the shift.

15 7. The magnetic disk apparatus according to claim 4, wherein the shift detecting unit measures either of the time interval between the reference signals, a dwelltime of the reference signals, and a time interval between specific sections within a sector on the recording medium, to thereby detect the shift.

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8. The magnetic disk apparatus according to claim 7, further comprising a power supply unit, wherein the shift detecting unit measures, when power supply unit is turned on, either of the time interval between the reference signals, a dwelltime of the reference signals, and a time interval between specific

sections within a sector on the recording medium, to thereby detect the shift.

9. The magnetic disk apparatus according to claim 7, wherein a  
5 space provided between sectors is such that, when the shift occurs, the specific sections within one sector do not overlap with specific sections within other sector.

10. A method for correcting a data recording position on a recording  
10 medium in a magnetic disk apparatus, comprising:

storing a first time interval that is a time interval between reference signals measured when there is no shift in a center of rotation of the recording medium;

15 measuring a second time interval between reference signals recorded on the recording medium, while the recording medium is being rotated, when there is a shift in the center of rotation of the recording medium;

computing a correction value of a data write time interval for writing data to the recording medium, based on the first time interval and  
20 a second time interval; and

writing data to the recording medium based on the correction value.

11. The method according to claim 10, wherein the computing comprises computing a ratio between the first time interval and the second time interval, and computing the correction value based on the ratio.

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12. The method according to claim 10, further comprising detecting occurrence of the shift.

13. The method according to claim 12, wherein the detecting includes  
10 detecting whether there is the shift using an impact sensor.

14. The method according to claim 12, wherein the detecting includes detecting whether there is the by detecting a change in a counter-electromotive force of a voice coil motor.

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15. The method according to claim 12, wherein the detecting includes measuring either of the time interval between the reference signals, a dwelltime of the reference signals, and a time interval between specific sections within a sector on the recording medium.

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16. The method according to claim 12, further comprising supplying power to the magnetic disk apparatus, wherein the detecting includes measuring the time interval between the reference signals or the dwelltime of the reference signals or the time interval between specific  
25 sections within a sector.